| | L # | Hits | Search Text | DBs | Time Stamp |
|---|---|---|---|---|---|
| 1 | L1 | 6 | glucuronyl and epimerase | USPAT; EPO; JPO; DERWENT | 2001/06/01 13:18 |

| | Document ID | Issue Date | Pages | Title | Current OR | Current XRef |
|---|---|---|---|---|---|---|
| 1 | US 6162797 A | 20001219 | 7 | Derivatives of K5 polysaccharide having high anticoagulant activity | 514/54 | 514/56 ; 536/21 ; 536/53 ; 536/54 ; 536/55 ; 536/55.1 ; 536/55.2 |
| 2 | US 5955347 A | 19990921 | 109 | Methods and products for the synthesis of oligosaccharide structures on glycoproteins, glycolipids, or as free molecules, and for the isolation of cloned genetic sequences that determine these structures | 435/252.3 | 435/193 ; 435/320.1 ; 536/23.2 |
| 3 | US 5770420 A | 19980623 | 114 | Methods and products for the synthesis of oligosaccharide structures on glycoproteins, glycolipids, or as free molecules, and for the isolation of cloned genetic sequences that determine these structures | 435/193 | 435/252.3 ; 435/320.1 ; 435/325 ; 536/23.2 ; 536/23.4 |

| | Document ID | Issue Date | Pages | Title | Current OR | Current XRef |
|---|---|---|---|---|---|---|
| 4 | US 5595900 A | 19970121 | 107 | Methods and products for the synthesis of oligosaccharide structures on glycoproteins, glycolipids, or as free molecules, and for the isolation of cloned genetic sequences that determine these structures | 435/193 | 435/320.1 ; 435/69.1 ; 536/23.2 |
| 5 | US 5324663 A | 19940628 | 114 | Methods and products for the synthesis of oligosaccharide structures on glycoproteins, glycolipids, or as free molecules, and for the isolation of cloned genetic sequences that determine these structures | 435/320.1 | 435/193 ; 435/69.1 ; 435/70.3 ; 536/23.2 |
| 6 | WO 9848006 A1 | 20001106 | 1 | DNA sequence coding for mammalian glucuronyl C5-epimerase and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of | | |

(FILE 'HOME' ENTERED AT 13:26:23 ON 01 JUN 2001)

INDEX 'ADISALERTS, ADISINSIGHT, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, DRUGNL, ...' ENTERED AT 13:27:15 ON 01 JUN 2001

| | SEA GLUCURONYL |
|---|---|
| 5 | FILE ADISALERTS |
| 2 | FILE ADISINSIGHT |
| 34 | FILE AGRICOLA |
| 17 | FILE ANABSTR |
| 40 | FILE AQUASCI |
| 22 | FILE BIOBUSINESS |
| 1628 | FILE BIOSIS |
| 20 | FILE BIOTECHABS |
| 20 | FILE BIOTECHDS |
| 103 | FILE BIOTECHNO |
| 89 | FILE CABA |
| 125 | FILE CANCERLIT |
| 1042 | FILE CAPLUS |
| 3 | FILE CEABA-VTB |
| 1 | FILE CEN |
| 19 | FILE CONFSCI |
| 9 | FILE CROPB |
| 11 | FILE CROPU |
| 111 | FILE DDFB |
| 161 | FILE DDFU |
| 13 | FILE DGENE |
| 111 | FILE DRUGB |
| 232 | FILE DRUGU |
| 2 | FILE EMBAL |
| 643 | FILE EMBASE |
| 118 | FILE ESBIOBASE |
| 8 | FILE FROSTI |
| 16 | FILE FSTA |
| 18 | FILE GENBANK |
| 4 | FILE HEALSAFE |
| 16 | FILE IFIPAT |
| 41 | FILE JICST-EPLUS |
| 1 | FILE KOSMET |
| 125 | FILE LIFESCI |
| 742 | FILE MEDLINE |
| 80 | FILE NIOSHTIC |
| 6 | FILE NTIS |
| 14 | FILE OCEAN |
| 160 | FILE PASCAL |
| 3 | FILE PHAR |
| 1 | FILE PHIN |
| 7 | FILE PROMT |
| 446 | FILE SCISEARCH |
| 419 | FILE TOXLINE |
| 380 | FILE TOXLIT |
| 151 | FILE USPATFULL |
| 36 | FILE WPIDS |
| 36 | FILE WPINDEX |

L1 QUE GLUCURONYL

FILE 'CAPLUS' ENTERED AT 13:27:51 ON 01 JUN 2001
E GLUCURONYL
E GLUCURONYL AND EPIMERASE

INDEX 'ADISALERTS, ADISINSIGHT, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, DRUGNL, ...' ENTERED AT 13:28:50 ON 01 JUN 2001

| | SEA GLUCURONYL AND EPIMERASE |
|---|---|
| 1 | FILE AGRICOLA |
| 8 | FILE BIOSIS |
| 5 | FILE BIOTECHABS |
| 5 | FILE BIOTECHDS |
| 5 | FILE BIOTECHNO |
| 1 | FILE CABA |
| 1 | FILE CANCERLIT |
| 8 | FILE CAPLUS |

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              13   FILE DGENE
               6   FILE EMBASE
               6   FILE ESBIOBASE
               6   FILE GENBANK
               1   FILE LIFESCI
               6   FILE MEDLINE
               1   FILE PASCAL
               6   FILE SCISEARCH
               5   FILE USPATFULL
               1   FILE WPIDS
               1   FILE WPINDEX
L2              QUE GLUCURONYL AND EPIMERASE
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     FILE 'MEDLINE, AGRICOLA, CAPLUS, BIOSIS, EMBASE, WPIDS' ENTERED AT
     13:29:25 ON 01 JUN 2001
L3            26 S GLUCURONYL (S) EPIMERASE
L4             9 DUP REM L3 (17 DUPLICATES REMOVED)

     FILE 'DGENE' ENTERED AT 13:30:42 ON 01 JUN 2001
L5            13 S GLUCURONYL (S) EPIMERASE
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INUE? Y/(N):y

L4 ANSWER 1 OF 9 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2000111103 MEDLINE
DOCUMENT NUMBER: 20111103 PubMed ID: 10642607
TITLE: Biosynthesis of heparin/heparan sulfate: kinetic studies of the **glucuronyl** C5-**epimerase** with N-sulfated derivatives of the Escherichia coli K5 capsular polysaccharide as substrates.
AUTHOR: Hagner-McWhirter A; Hannesson H H; Campbell P; Westley J; Roden L; Lindahl U; Li J P
CORPORATE SOURCE: Department of Medical Biochemistry and Microbiology, Uppsala University, The Biomedical Center, Box 582, S-751 23, Uppsala, Sweden,.
CONTRACT NUMBER: DE08252 (NIDCR)
NS27353 (NINDS)
SOURCE: GLYCOBIOLOGY, (2000 Feb) 10 (2) 159-71.
Journal code: BEL; 9104124. ISSN: 0959-6658.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200003
ENTRY DATE: Entered STN: 20000327
Last Updated on STN: 20000327
Entered Medline: 20000313

AB The D-**glucuronyl** C5-**epimerase** involved in the biosynthesis of heparin and heparan sulfate was investigated with focus on its substrate specificity, its kinetic properties, and a comparison of **epimerase** preparations from the Furth mastocytoma and bovine liver, which synthesize heparin and heparan sulfate, respectively. New substrates for the **epimerase** were prepared from the capsular polysaccharide of Escherichia coli K5, which had been labeled at C5 of its D-glucuronic and N-acetyl-D-glucosamine moieties by growing the bacteria in the presence of D-[5-(3)H]glucose. Following complete or partial ( approximately 50%) N-deacetylation of the polysaccharide by hydrazinolysis, the free amino groups were sulfated by treatment with trimethylamine.SO(3)complex, which yielded products that were recognized as substrates by the **epimerase** and released tritium from C5 of the D-**glucuronyl** residues upon incubation with the enzyme. Comparison of the kinetic properties of the two substrates showed that the fully N-sulfated derivative was the best substrate in terms of its K(m)value, which was significantly lower than that of its partially N-acetylated counterpart. The V(max)values for the E.coli polysaccharide derivatives were essentially the same but were both lower than that of the O-desulfated [(3)H]heparin used in our previous studies. Surprisingly, the apparent K(m)values for all three substrates increased with increasing enzyme concentration. The reason for this phenomenon is not entirely clear at present. Partially purified C5-**epimerase** preparations from the Furth mastocytoma and bovine liver, respectively, behaved similarly in terms of their reactivity towards the various substrates, but the variation in apparent K(m)values with enzyme concentration precluded a detailed comparison of their kinetic properties.

L4 ANSWER 2 OF 9 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 2000:270488 CAPLUS
DOCUMENT NUMBER: 133:27957
TITLE: Biosynthesis of heparin/heparan sulphate: mechanism of epimerization of glucuronyl C-5
AUTHOR(S): Hagner-McWhirter, Asa; Lindahl, Ulf; Li, Jin-Ping
CORPORATE SOURCE: Department of Medical Biochemistry and Microbiology, Section for Medical Biochemistry, Biomedical Center, University of Uppsala, Uppsala, SE-751 23, Swed.
SOURCE: Biochem. J. (2000), 347(1), 69-75
CODEN: BIJOAK; ISSN: 0264-6021
PUBLISHER: Portland Press Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB In the biosynthesis of heparin and heparan sulfate, D-glucuronic acid residues are converted into L-iduronic acid (IdoA) units by C-5 epimerization, at the polymer level. The reaction catalyzed by the epimerase occurs by reversible abstraction and readdn. of a proton at C-5 of target hexuronic acid residues, through a carbanion intermediate, with or without an inversion of configuration at C-5. Incubation of chem. N-sulfated capsular polysaccharide from Escherichia coli K5 ([4GlcA.beta.1-4GlcNSO3.alpha.1-]n), or of O-desulfated heparin (predominantly [4IdoA.alpha.1-4GlcNSO3.alpha.1-]n) with purified C-5 epimerase from bovine liver, resulted in the interconversion of glucuronic acid and IdoA residues, which reached equil. (30-40% IdoA/total hexuronic

acid) after approx. 1 h of incubation. Similar incubations performed in the presence of 3H2O resulted in progressive labeling at C-5 of the target hexuronic acid units of either substrate polysaccharide. Contrary to chem. D-gluco/L-ido equil., established within 1 h of incubation, the accumulation of 3H label continued for at least 6 h. This isotope effect suggests that the second stage of the reaction, i.e. the re-addn. of a proton to the carbanion intermediate, is the rate-limiting step of the overall process. Anal. of the 5-3H-labeled polysaccharide products showed that the 3H was approx. equally distributed between glucuronic acid and IdoA units, irresp. of incubation time (from 15 min to 72 h) and of the relative proportions of the two epimers in the substrate. This finding points to a catalytic mechanism in which the abstraction and re-addn. of C-5 protons are effected by two polyprotic bases, presumably lysine residues. Previous expts. relating to the biosynthesis of dermatan sulfate were similarly interpreted in terms of a two-base epimerization mechanism but differed from the present findings by implicating one monoprotic and one polyprotic base function.

REFERENCE COUNT: 37

REFERENCE(S):
(1) Bitter, T; Anal Biochem 1962, V4, P330 CAPLUS
(2) Bradford, M; Anal Biochem 1976, V72, P248 CAPLUS
(3) Campbell, P; J Biol Chem 1994, V269, P26953 CAPLUS
(4) Casu, B; Carbohydr Lett 1994, V1, P107 CAPLUS
(5) Casu, B; Carbohydr Res 1994, V263, P271 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 9 CAPLUS COPYRIGHT 2001 ACS DUPLICATE 2

ACCESSION NUMBER: 1998:709175 CAPLUS
DOCUMENT NUMBER: 129:327732
TITLE: DNA sequence coding for a bovine **glucuronyl** C5-**epimerase** and a process for its production
INVENTOR(S): Lindahl, Ulf; Li, Jin-Ping
PATENT ASSIGNEE(S): Swed.
SOURCE: PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 9848006 | A1 | 19981029 | WO 1998-SE703 | 19980417 |
| W: AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ, DE, DE, DK, DK, EE, EE, ES, FI, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG | | | | |
| AU 9870948 | A1 | 19981113 | AU 1998-70948 | 19980417 |
| AU 718472 | B2 | 20000413 | | |
| EP 986639 | A1 | 20000322 | EP 1998-917913 | 19980417 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| NO 9905059 | A | 19991214 | NO 1999-5059 | 19991015 |
| PRIORITY APPLN. INFO.: | | | SE 1997-1454 | 19970418 |
| | | | WO 1998-SE703 | 19980417 |

AB An isolated or recombinant DNA sequence coding for a mammalian, including human, **glucuronyl** C5-**epimerase** or a functional deriv. thereof capable of converting D-glucuronic acid (GlcA) to L-iduronic acid (IdoA) is provided. The cDNA sequence isolated from bovine liver contains an open reading frame corresponding to 444 amino acid residues. Also provided are: a recombinant expression vector comprising such DNA sequence; a host cell transformed with such recombinant expression vector; a process for the manuf. of a **glucuronyl** C5-**epimerase** or functional deriv. thereof capable of converting GlcA to IdoA, comprising cultivation of a cell-line transformed with such recombinant expression vector; and a **glucuronyl** C5-**epimerase** or functional deriv. thereof prepd. by such process.

L4 ANSWER 4 OF 9 MEDLINE DUPLICATE 3

ACCESSION NUMBER: 1998113140 MEDLINE
DOCUMENT NUMBER: 98113140 PubMed ID: 9442018
TITLE: A major common trisulfated hexasaccharide core sequence, hexuronic acid(2-sulfate)-glucosamine(N-sulfate)-iduronic acid-N-acetylglucosamine-glucuronic acid-glucosamine(N-

sulfate), isolated from the low sulfated irregular region of porcine intestinal heparin.

AUTHOR: Yamada S; Yamane Y; Tsuda H; Yoshida K; Sugahara K
CORPORATE SOURCE: Department of Biochemistry, Kobe Pharmaceutical University, Japan.

SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1998 Jan 23) 273 (4) 1863-71.
Journal code: HIV; 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199803
ENTRY DATE: Entered STN: 19980312
Last Updated on STN: 19980312
Entered Medline: 19980303

AB The major structure of the low sulfated irregular region of porcine intestinal heparin was investigated by characterizing the hexasaccharide fraction prepared by extensive digestion of the highly sulfated region with Flavobacterium heparinase and subsequent size fractionation by gel chromatography. Structures of a tetrasaccharide, a pentasaccharide, and eight hexasaccharide components in this fraction, which accounted for approximately 19% (w/w) of the starting heparin representing the major oligosaccharide fraction derived from the irregular region, were determined by chemical and enzymatic analyses as well as 1H NMR spectroscopy. Five compounds including one penta- and four hexasaccharides had hitherto unreported structures. The structure of the pentasaccharide with a glucuronic acid at the reducing terminus was assumed to be derived from the reducing terminus of a heparin glycosaminoglycan chain and may represent the reducing terminus exposed by a tissue endo-beta-glucuronidase involved in the intracellular post-synthetic fragmentation of macromolecular heparin. Eight out of the 10 isolated oligosaccharides shared the trisaccharide sequence, -4IdceA alpha 1-4GlcNAc alpha 1-4GlcA beta 1-, and its reverse sequence, -4GlcA beta 1-4GlcNAc alpha 1-4IdceA alpha 1-, was not found. The latter has not been reported to date for heparin/heparan sulfate, indicating the substrate specificity of the D-**glucuronyl** C-5 **epimerase**. Furthermore, seven hexasaccharides shared the common trisulfated hexasaccharide core sequence delta HexA(2-sulfate)alpha 1-4GlcN(N-sulfate)alpha 1-4IdceA alpha 1-4GlcNAc alpha 1-4GlcA beta 1-4GlcN(N-sulfate) which contained the above trisaccharide sequence (delta HexA, IdceA, GlcN, and GlcA represent 4-deoxy-alpha-L-threo-hex-4-enepyranosyluronic acid, L-iduronic acid, D-glucosamine, and D-glucuronic acid, respectively) and additional sulfate groups. The specificity of the heparinase used for preparation of the oligosaccharides indicates the occurrence of the common pentasulfated octasaccharide core sequence, -4GlcN(N-sulfate)alpha 1-4HexA(2-sulfate)1-4GlcN(N-sulfate) alpha 1-4IdceA alpha 1-4GlcNAc alpha 1-4GlcA beta 1-4 GlcN(N-sulfate)alpha 1-4HexA(2-sulfate)1-, where the central hexasaccharide is flanked by GlcN(N-sulfate) and HexA(2-sulfate) on the nonreducing and reducing sides, respectively. The revealed common sequence constituted a low sulfated trisaccharide representing the irregular region sandwiched by highly sulfated regions and should reflect the control mechanism of heparin biosynthesis.

L4 ANSWER 5 OF 9 MEDLINE DUPLICATE 4

ACCESSION NUMBER: 1998010666 MEDLINE
DOCUMENT NUMBER: 98010666 PubMed ID: 9346972

TITLE: Biosynthesis of heparin/heparan sulfate. cDNA cloning and expression of D-**glucuronyl** C5-**epimerase** from bovine lung.

AUTHOR: Li J; Hagner-McWhirter A; Kjellen L; Palgi J; Jalkanen M; Lindahl U
CORPORATE SOURCE: Department of Medical and Physiological Chemistry, University of Uppsala, S-751 23 Uppsala, Sweden..
Jin-Ping.Li@medkem.uu.se

SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1997 Oct 31) 272 (44) 28158-63.
Journal code: HIV; 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF003927
ENTRY MONTH: 199712
ENTRY DATE: Entered STN: 19980109
Last Updated on STN: 19980109
Entered Medline: 19971209

AB **Glucuronyl** C5-epimerases catalyze the conversion of D-glucuronic acid (GlcUA) to L-iduronic acid (IdceA) units during the biosynthesis of

glycosaminoglycans. An **epimerase** implicated in the generation of heparin/heparan sulfate was previously purified to homogeneity from bovine liver (Campbell, P., Hannesson, H. H., Sandback, D., Roden, L., Lindahl, U., and Li, J.-p. (1994) J. Biol. Chem. 269, 26953-26958). The present report describes the molecular cloning and functional expression of the lung enzyme. The cloned enzyme contains 444 amino acid residues and has a molecular mass of 49,905 Da. N-terminal sequence analysis of the isolated liver enzyme showed this species to be a truncated form lacking a 73-residue N-terminal domain of the deduced amino acid sequence. The coding cDNA insert was cloned into a baculovirus expression vector and expressed in Sf9 insect cells. Cells infected with recombinant **epimerase** showed a 20-30-fold increase in enzyme activity, measured as release of 3H2O from a polysaccharide substrate containing C5-3H-labeled hexuronic acid units. Furthermore, incubation of the expressed protein with the appropriate (GlcUA-GlcNSO3)n substrate resulted in conversion of approximately 20% of the GlcUA units into IdceA residues. Northern analysis implicated two **epimerase** transcripts in both bovine lung and liver tissues, a dominant approximately 9-kilobase (kb) mRNA and a minor approximately 5-kb species. Mouse mastocytoma cells showed only the approximately 5-kb transcript. A comparison of the cloned **epimerase** with the enzymes catalyzing an analogous reaction in alginate biosynthesis revealed no apparent amino acid sequence similarity.

L4 ANSWER 6 OF 9 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 96152546 MEDLINE
DOCUMENT NUMBER: 96152546 PubMed ID: 8573097
TITLE: Biosynthesis of dermatan sulphate. Defructosylated Escherichia coli K4 capsular polysaccharide as a substrate for the D-**glucuronyl** C-5 **epimerase**, and an indication of a two-base reaction mechanism.
AUTHOR: Hannesson H H; Hagner-McWhirter A; Tiedemann K; Lindahl U; Malmstrom A
CORPORATE SOURCE: Department of Medical and Physiological Chemistry, University of Uppsala, Sweden.
SOURCE: BIOCHEMICAL JOURNAL, (1996 Jan 15) 313 ( Pt 2) 589-96. Journal code: 9YO; 2984726R. ISSN: 0264-6021.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199603
ENTRY DATE: Entered STN: 19960315
Last Updated on STN: 19980206
Entered Medline: 19960301

AB The capsular polysaccharide from Escherichia coli K4 consists of a chondroitin ([GlcA(beta 1-->3)GalNAc(beta 1-->4)]n) backbone, to which beta-fructofuranose units are linked to C-3 of D-glucuronic acid (GlcA) residues. Removal of the fructose units by mild acid hydrolysis provided a substrate for the GlcA C-5 epimerase, which is involved in the generation of L-iduronic acid (IdoA) units during dermatan sulphate biosynthesis. Incubation of this substrate with solubilized fibroblast microsomal enzyme in the presence of 3H2O resulted in the incorporation of tritium at C-5 of hexuronyl units. A Km of 67 x 10(-6) M hexuronic acid (equivalent to disaccharide units) was determined, which is similar to that (80 x 10(-6) M) obtained for dermatan (desulphated dermatan sulphate). Vmax was about 4 times higher with dermatan than with the K4 substrate. A defructosylated K4 polysaccharide isolated after incubation of bacteria with D-[5-3H]glucose released 3H2O on reaction with the epimerase, and thus could be used to assay the enzyme. Incubation of a K4 substrate with solubilized microsomal epimerase for 6 h in the presence of 3H2O resulted in the formation of about 5% IdoA and approximately equal amounts of 3H in GlcA and IdoA. A corresponding incubation of dermatan yielded approx. 22% GlcA, which contained virtually all the 3H label. These results are tentatively explained in terms of a two-base reaction mechanism, involving a monoprotic L-ido-specific base and a polyprotic D-gluco-specific base. Most of the IdoA residues generated by the enzyme occurred singly, although some formation of two or three consecutive IdoA-containing disaccharide units was observed.

L4 ANSWER 7 OF 9 MEDLINE DUPLICATE 6
ACCESSION NUMBER: 95014562 MEDLINE
DOCUMENT NUMBER: 95014562 PubMed ID: 7929434
TITLE: Biosynthesis of heparin/heparan sulfate. Purification of the D-**glucuronyl** C-5 **epimerase** from bovine liver.
AUTHOR: Campbell P; Hannesson H H; Sandback D; Roden L; Lindahl U; Li J P
CORPORATE SOURCE: University of Alabama at Birmingham 35294.
CONTRACT NUMBER: DE 08252 (NIDCR)

NS 27353 (NINDS)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1994 Oct 28) 269 (43) 26953-8.
Journal code: HIV; 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199411
ENTRY DATE: Entered STN: 19941222
Last Updated on STN: 20000303
Entered Medline: 19941123

AB The D-**glucuronyl** C-5 **epimerase** involved in the biosynthesis of heparin/heparan sulfate was purified from the high speed supernatant fraction of a homogenate of bovine liver by chromatography on immobilized O-desulfated heparin, red Sepharose, phenyl Sepharose, and concanavalin A-Sepharose. After close to 1 million-fold purification, in 10-15% yield, the product gave a single band on SDS-polyacrylamide gel electrophoresis with silver staining and had a mobility corresponding to an M(r) of approximately 52,000. Since the **epimerase** assay used in the course of purification was based on release of tritium, as [3H]H2O, from a [5-3H]uronyl-labeled substrate, it was important to establish that the purified enzyme did indeed catalyze the actual conversion of D-**glucuronyl** to L-iduronyl residues. Upon incubation of the purified enzyme with 3H-labeled heparosan N-sulfate, prepared by metabolic labeling (with D-[1-3H]glucose) of a capsular polysaccharide from Escherichia coli K5 and subsequent chemical partial N-deacetylation and N-sulfation, approximately 30% of the D-**glucuronyl** residues located between two N-sulfated glucosamine units were converted to L-iduronyl units.

L4 ANSWER 8 OF 9 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1979:243115 BIOSIS
DOCUMENT NUMBER: BA68:45619
TITLE: METHODS FOR SPECIFIC CHARACTERIZATION OF TRACE AMOUNTS OF URIDINE NUCLEOTIDES IN ANIMAL CELL CULTURES.
AUTHOR(S): ULLREY D B; KALCKAR H M
CORPORATE SOURCE: SECT. CELL METAB., JOHNS COLLINS WARREN LAB., HUNTINGTON MEML. HOSP. HARV. UNIV., BOSTON, MASS. 02114, USA.
SOURCE: ANAL BIOCHEM, (1979) 95 (1), 245-249.
CODEN: ANBCA2. ISSN: 0003-2697.
FILE SEGMENT: BA; OLD
LANGUAGE: English

AB The use of specific indicator enzymes [UDP-glucose dehydrogenase (EC 1.1.1.22), UDP-galactose 4-epimerase (EC 5.1.3.2) and UDP-glucuronyle decarboxylase (EC 4.1.1.35)] to characterize the nature of radioactive peaks, obtained from paper chromatograms of protein-free cell filtrates from [hamster fibroblast NIL] cell cultures briefly incubated with [14C]galactose, is described. The use of an internal standard ([3H]UDP-galactose) added to the filtrates before their exposure to the indicator enzymes illustrates the specificity of the method used, as well as its usefulness in quantitative analysis of the abundance of nucleotide sugars in cell cultures under different culture conditions.

L4 ANSWER 9 OF 9 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1974:127597 BIOSIS
DOCUMENT NUMBER: BA57:27297
TITLE: ACTIVITY OF URIDYL TRANSFERASE SYSTEM IN BRAIN DURING THE TERMINAL STATE.
AUTHOR(S): KHACHATRYAN G S; NAZARETYAN E E; AZGALDYAN N R
SOURCE: VOPR MED KHIM, (1972 (RECD 1973)) 18 (6), 591-596.
CODEN: VMDKAM. ISSN: 0042-8809.
FILE SEGMENT: BA; OLD
LANGUAGE: Unavailable

=> file dgene

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 17.44 | 19.29 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
| CA SUBSCRIBER PRICE | -1.18 | -1.18 |

FILE 'DGENE' ENTERED AT 13:30:42 ON 01 JUN 2001


FILE LAST UPDATED: 28 MAY 2001 <20010528/UP>
LATEST DERWENT WEEK COMPREHENSIVELY COVERED: 200117

>>> 1 MILLION BIOSEQUENCES AVAILABLE IN DGENE NOW <<<

>>> HOMOLOGY SEARCH FOR NUCLEOTIDES NOW AVAILABLE -
NEW GETSIM SEARCH FIELD CODES /SQP, /SQN, /TSQN
MUST BE SPECIFIED - SEE NEWS <<<

>>> HOMOLOGY BATCH SEARCH NOW AVAILABLE - SEE HELP SBATCH <<<

=> s glucuronyl (s) epimerase
13 GLUCURONYL
370 EPIMERASE
L5 13 GLUCURONYL (S) EPIMERASE

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L5 ANSWER 1 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAW79270 Peptide DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB This is an internal peptide of a **glucuronyl** C5-**epimerase** purified from bovine liver. It corresponds to amino acid residues 74-86 of the deduced amino acid sequence (see AAW79263) of the **epimerase**. N-terminal and internal peptides (see AAW79264-70) of the **epimerase** were produced by digestion of the purified **epimerase** using a lysine-specific protease. PCR primers (see AAV62689-91) based on one of these peptides (see AAW79270) were used to generate a probe that was utilised in the isolation of **glucuronyl** C5-**epimerase** cDNA (see AAV62688) from a bovine lung cDNA library. The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase** or its functional derivative. These can be used for the recombinant production of the enzyme, which is useful for converting D-glucuronic acid to L-iduronic acid in the biosynthesis of heparin and heparan sulphate.

L5 ANSWER 2 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAW79269 Peptide DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB This is an internal peptide of a **glucuronyl** C5-**epimerase** purified from bovine liver. It corresponds to amino acid residues 306-313. of the deduced amino acid sequence (see AAW79263) of the **epimerase**. N-terminal and internal peptides (see AAW79264-70) of the **epimerase** were produced by digestion of the purified **epimerase** using a lysine-specific protease. PCR primers (see AAV62689-91) based on one of these peptides (see AAW79270) were used to generate a probe that was utilised in the isolation of **glucuronyl** C5-**epimerase** cDNA (see AAV62688) from a bovine lung cDNA library. The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase** or its functional derivative. These can be used for the recombinant production of the enzyme, which is useful for converting D-glucuronic acid to L-iduronic acid in the biosynthesis of heparin and heparan sulphate.

L5 ANSWER 3 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAW79268 Peptide DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB This is an internal peptide of a **glucuronyl** C5-**epimerase** purified from bovine liver. It corresponds to amino acid residues 247-256 of the deduced amino acid sequence (see AAW79263) of the **epimerase**. N-terminal and internal peptides (see AAW79264-70) of the **epimerase** were produced by digestion of the purified **epimerase** using a lysine-specific protease. PCR primers (see AAV62689-91) based on one of these peptides (see AAW79270) were used to generate a probe that was utilised in the isolation of **glucuronyl** C5-**epimerase** cDNA (see AAV62688) from a bovine lung cDNA library. The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase** or its functional derivative. These can be used for the recombinant production of the enzyme, which is useful for converting D-glucuronic acid to L-iduronic acid in the biosynthesis of heparin and heparan sulphate.

L5 ANSWER 4 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAW79267 Peptide DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB This is an internal peptide of a **glucuronyl** C5-**epimerase** purified from bovine liver. It corresponds to amino acid residues 99-113 of the deduced amino acid sequence (see AAW79263) of the **epimerase**. N-terminal and internal peptides (see AAW79264-70) of the **epimerase** were produced by digestion of the purified **epimerase** using a lysine-specific protease. PCR primers (see AAV62689-91) based on one of these peptides (see AAW79270) were used to generate a probe that was utilised in the isolation of **glucuronyl** C5-**epimerase** cDNA (see AAV62688) from a bovine lung cDNA library. The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase** or its functional derivative. These can be used for the recombinant production of the enzyme, which is useful for converting D-glucuronic acid to L-iduronic acid in the biosynthesis of heparin and heparan sulphate.

L5 ANSWER 5 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAW79266 Peptide DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB This is an N-terminal peptide of a **glucuronyl** C5-

**epimerase** purified from bovine liver. It corresponds to amino acid residues 74-86 of the deduced amino acid sequence (see AAW79263) of the **epimerase**. N-terminal and internal peptides (see AAW79264-70) of the **epimerase** were produced by digestion of the purified **epimerase** using a lysine-specific protease. PCR primers (see AAV62689-91) based on one of these peptides (see AAW79270) were used to generate a probe that was utilised in the isolation of **glucuronyl** C5-**epimerase** cDNA (see AAV62688) from a bovine lung cDNA library. The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase** or its functional derivative. These can be used for the recombinant production of the enzyme, which is useful for converting D-glucuronic acid to L-iduronic acid in the biosynthesis of heparin and heparan sulphate.

L5 ANSWER 6 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAW79265 Peptide DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB This is an N-terminal peptide of a **glucuronyl** C5-**epimerase** purified from bovine liver. It corresponds to amino acid residues 74-84 of the deduced amino acid sequence (see AAW79263) of the **epimerase**. N-terminal and internal peptides (see AAW79264-70) of the **epimerase** are provided. PCR primers (see AAV62689-91) based on one of these peptides (see AAW79270) were used to generate a probe that was utilised in the isolation of **glucuronyl** C5-**epimerase** cDNA (see AAV62688) from a bovine lung cDNA library. The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase** or its functional derivative. These can be used for the recombinant production of the enzyme, which is useful for converting D-glucuronic acid to L-iduronic acid in the biosynthesis of heparin and heparan sulphate.

L5 ANSWER 7 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAW79264 Peptide DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB This is an N-terminal peptide of a **glucuronyl** C5-**epimerase** purified from bovine liver. It corresponds to amino acid residues 74-86 of the deduced amino acid sequence (see AAW79263) of the **epimerase**. N-terminal and internal peptides (see AAW79264-70) of the **epimerase** are provided. PCR primers (see AAV62689-91) based on one of these peptides (see AAW79270) were used to generate a probe that was utilised in the isolation of **glucuronyl** C5-**epimerase** cDNA (see AAV62688) from a bovine lung cDNA library. The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase** or its functional derivative. These can be used for the recombinant production of the enzyme, which is useful for converting D-glucuronic acid to L-iduronic acid in the biosynthesis of heparin and heparan sulphate.

L5 ANSWER 8 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAW79263 Protein DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of

converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB This is the amino acid sequence of bovine **glucuronyl** C5-**epimerase**. It was deduced from the sequence (see AAV62688) of a cDNA clone obtained from a bovine lung cDNA library. **Glucuronyl** C5-**epimerase** catalyses the conversion of D-glucoronic acid (GlcA) to L-iduronic acid (IdoA). The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase** or its functional derivative. Recombinant expression vectors and transformed host cells are also claimed. The nucleic acid and vector can be used for the recombinant production of the enzyme. **Glucuronyl** C5-**epimerase** is useful for converting GlcA to IdoA in the biosynthesis of heparin and heparan sulphate.

L5 ANSWER 9 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAV62692 DNA DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB This oligonucleotide is an **epimerase** cDNA-specific primer that was used in the PCR amplification of a bovine lung cDNA library prepared in lambda gt10. A clone was isolated that included an additional 5' 12-bp sequence when compared to the 3 kb insert of a clone obtained by screening the library with a 108-bp probe. The sequences of the 2 clones were combined to provide the **glucuronyl** C5-**epimerase** cDNA sequence provided in AAV62688. The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase**. These can be used for the recombinant production of the enzyme, which is useful for converting D-glucuronic acid to L-iduronic acid in the biosynthesis of heparin and heparan sulphate.

L5 ANSWER 10 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAV62691 DNA DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB Primer 3(AS) is based on amino acid residues 31-36 of an internal peptide (see AAW79270) isolated from bovine liver **glucuronyl** C5-**epimerase**. It is 32-fold degenerate, and includes a 5' BamHI restriction site. It was used with sense primer 1(S) (see AAV62689) to amplify bovine liver cDNA. A 108 bp DNA fragment was generated that was used as a probe in the isolation of **glucuronyl** C5-**epimerase** cDNA (see AAV62688) from bovine lung. The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase**. These can be used for the recombinant production of the enzyme, which is useful for converting D-glucuronic acid to L-iduronic acid in the biosynthesis of heparin and heparan sulphate.

L5 ANSWER 11 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAV62690 DNA DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB Primer 2(S) is based on amino acid residues 16-21 of an internal peptide (see AAW79270) isolated from bovine liver **glucuronyl** C5-**epimerase**. It is 288-fold degenerate, and includes a 5' EcoRI restriction site. It was used with antisense primer 3(AS) (see AAV62691) in a nested PCR amplification of a 108 bp DNA fragment produced from bovine liver cDNA using primers 1(S) (see AAV62689) and 3(AS). This 108 bp fragment was used as a probe in the isolation of **glucuronyl** C5-**epimerase** cDNA (see AAV62688) from bovine lung. The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase**. These can be used for the recombinant production of the enzyme, which is useful for converting D-glucuronic acid to L-iduronic acid in the biosynthesis of heparin and heparan sulphate.

L5 ANSWER 12 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAV62689 DNA DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB Primer 1(S) is based on amino acid residues 1-6 of an internal peptide (see AAW79270) isolated from bovine liver **glucuronyl** C5-**epimerase**. It is 384-fold degenerate, and includes a 5' EcoRI restriction site. It was used with antisense primer 3(AS) (see AAV62691) to amplify bovine liver cDNA. A 108 bp DNA fragment was generated that was used as a probe in the isolation of **glucuronyl** C5-**epimerase** cDNA (see AAV62688) from bovine lung. The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase**. These can be used for the recombinant production of the enzyme, which is useful for converting D-glucuronic acid to L-iduronic acid in the biosynthesis of heparin and heparan sulphate.

L5 ANSWER 13 OF 13 DGENE COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: AAV62688 cDNA DGENE
TITLE: DNA sequence coding for mammalian **glucuronyl** C5-**epimerase** and functional derivatives - capable of converting D-glucuronic acid to L-iduronic acid in the synthesis of heparin and heparan sulphate
INVENTOR: Li J; Lindahl U
PATENT ASSIGNEE: (LIJJ-I)LI J.
(LIND-I) LINDAHL U.
PATENT INFO: WO 9848006 A1 19981029 26p
APPLICATION INFO: WO 1998-SE703 19980417
PRIORITY INFO: SE 1997-1454 19970418
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: 1998-583655 [49]
AB This cDNA sequence includes a claimed coding region that encodes bovine **glucuronyl** C5-**epimerase** (see AAW79263), an enzyme that catalyses the conversion of D-glucuronic acid (GlcA) to L-iduronic acid (IdoA). To isolate the sequence, highly purified **epimerase** from bovine liver was subjected to digestion with a lysine-specific protease. A DNA probe was generated from bovine liver cDNA by PCR using

primers (see AAV62689-91) based on an isolated peptide (see AAW79270). This was used to screen a bovine lung lambda gt10 library, and a hybridising clone was identified and sequenced. An additional 12 bp of 5' sequence was obtained from a clone isolated from the library by PCR using an **epimerase**-specific primer (see AAV62692). The invention relates to isolated or recombinant DNA sequences for a mammalian (including human) **glucuronyl** C5-**epimerase** or its functional derivative. Recombinant expression vectors and transformed host cells are also claimed. The nucleic acid and vector can be used for the recombinant production of the enzyme. **Glucuronyl** C5-**epimerase** is useful for converting GlcA to IdoA in the biosynthesis of heparin and heparan sulphate.

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